Digital Blood Pressure Monitor with an Upper Arm Cuff

User's manual

EN

SENCOR®

SBP 690

Thank you for choosing the SBP 690 digital blood pressure monitor and we hope that you will be happy with it.

The SBP 690 blood pressure monitor presents the perfect combination of attractive design, simple controls and functionality.

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Revision 12/2012

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WHAT YOU SHOULD KNOW ABOUT BLOOD PRESSURE

What is blood pressure?

Blood pressure is defined as the pressure exerted by the blood on the walls of the arteries through which it flows. Blood pressure fluctuates during the course of each heartbeat between the maximum (systolic) and the minimum (diastolic) value. Blood pressure is influenced by many factors, such as physical activity, fear, anger or by a certain time of day.
Blood pressure changes constantly over the course day. Early in the morning it rises and before noon it falls. In the afternoon it rises again and then falls in the evening hours. Blood pressure may also change within an instant and so the subsequent measurement results may vary.

Why is it important to measure your blood pressure at home?

Many people have increased blood pressure when they visit their doctor, while at home their blood pressure is in the normal range. This is the so-called white coat syndrome and may affect up to 15 % of the population.
Home blood pressure measurement eliminates the white coat syndrome and provides the doctor with a picture of the various blood pressure levels during your natural activity.

Blood pressure classification by the World Health Organisation

The following table shows the blood pressure classification for an adult person according to the World Health Organisation (WHO).

Blood pressure category	Systolic blood pressure (in mmHg)	Diastolic blood pressure (in mmHg)
Optimal	<120	<80
Normal	120–129	80–84
High normal	130–139	85–89
Hypertension: Grade 1 (mild)	140–159	90–99
Hypertension 2nd level (medium)	160–179	100–109
Hypertension: Grade 3 (heavy)	≥180	≥110
Isolated systolic hypertension	≥140	<90

What is cardiac arrhythmia?

Cardiac arrhythmias are a disorder of the rhythm of the heartbeat. They result from a varied creation or conduction of electrical impulses in the heart. Many cardiac arrhythmias are only temporary in nature. Such types of arrhythmias are considered to be harmless and include the cases where the heart misses or adds a beat. This may be caused by strong emotions or exercise. However, there exist types of arrhythmia, which may be life threatening and require professional treatment.

Symptoms of cardiac arrhythmia

Symptoms of cardiac arrhythmia: strong or accelerated beating of the heart, feeling of tiredness, vertigo, loss of consciousness, lack of breath and chest pain.
Symptoms of bradycardia (slowed down heart activity): feeling of tiredness, lack of breath, vertigo or dizziness.
Symptoms of tachycardia (accelerated heart activity): the heartbeat may be felt in the neck or as a beat in the chest with irregular speed, feeling of unease, weakness, lack of breath, dizziness, sweating and vertigo.

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Can cardiac arrhythmia be treated?

Cardiac arrhythmia can to a certain extent be prevented by eliminating the stimuli (physical exertion, stress, smoking, consumption of alcohol, coffee or other beverages containing caffeine) affecting the nervous system. Many types of cardiac arrhythmias do not require treatment as they are naturally compensated by the immune system. Other types of cardiac arrhythmias must be treated with medication (antiarrhythmic agents), defibrillator implants or pacemakers. The treatment method depends on the type of cardiac arrhythmia, age of the patient and their physical condition.

IMPORTANT INSTRUCTIONS

Prior to using this product, please read the user's manual thoroughly, even in cases, when one has already familiarised themselves with previous use of similar types of products. Use the product only as described in this manual. Keep this manual for later use.

Caution! Not following the instructions contained in this user's manual may lead to faulty operation of the device or its damage.

- This device is designed for non-invasive blood pressure measurement.
- The cuff with an adjustable length of 22–42 cm is intended only for adults.
- Do not twist or excessively bend the cuff or the air hose. Take care not to damage the cuff or the air hose by sharp items, such as pins, needles, etc.
- Do not disassemble the device and do not make any alterations to it.
- Use only original accessories supplied with the device.
- Do not use the device if your arm is injured.
- If you suffer from a circulatory system disorder, such as atherosclerosis, diabetes, liver or kidney illness, heavy hypertension, external circulation disorders, etc., consult your doctor or an expert healthcare professional about the suitability of using a blood pressure monitor or similar devices.
- If you are undergoing medical treatment or taking medication, consult the use of this device with a doctor.
- Rest at least 5 to 10 minutes before measuring blood pressure.
- Wait at least 4 to 5 minutes before measuring again, so that your blood circulation can return to the normal state.
- Do not perform measurement sooner than 30–45 minutes after consuming beverages containing caffeine or after smoking cigarettes.
- Remove all tight clothing from your arm before taking a blood pressure measurement. Use the cuff only on the arm. Do not use on another part of the body.
- Do not start measurement until the cuff is attached to the arm.
- Perform the measurement in a calm and relaxed position. Do not move the device during measurement.
- The device automatically releases air when the pressure in the cuff exceeds 300 mmHg. If the automatic air release does not occur, remove the cuff and press the START/STOP button to end the pressurisation of the cuff.
- Remember that blood pressure fluctuates over the course of the day and is also affected by many factors, such as smoking, consumption of alcohol, taking medicines and physical activity.
- The measurement results should be evaluated by a doctor or another expert, who knows your long term health condition. Please, do not make conclusions on the basis of the results yourself.
- By regularly measuring your blood pressure and recording the measurement results, you will provide your doctor with a complete picture of your blood pressure during natural activity.
- Blood pressure values measured using the oscillometric method when using this device are equivalent to the measurement results taken by an experienced observer using the auscultatory (listening) method using a blood pressure monitor with a stethoscope.
- This device is not designed for a continuous monitoring of blood pressure during medical treatment, such as for example operations, etc.
- This device is designed for domestic use and does not substitute for professional medical care.

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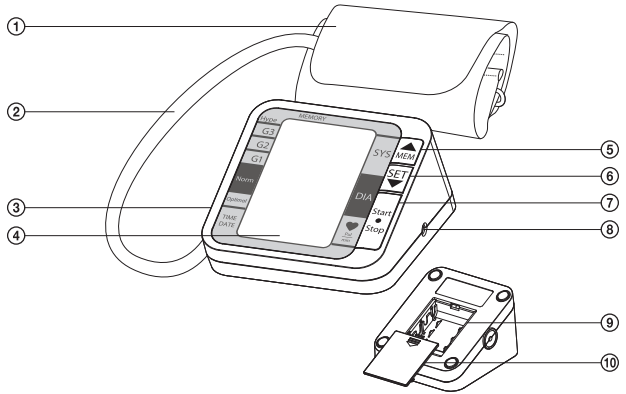
- Keep the device and the batteries out of reach of children.
- We recommend saving the original package, packaging material, receipt and warranty card for the duration of warranty. In the case of transportation, pack the product using the original packaging materials only.

BASIC FUNCTIONS AND FEATURES OF THE BLOOD PRESSURE MONITOR

- Measurement of the systolic and diastolic blood pressure and pulse
- Detection of cardiac arrhythmia
- Adjustable length cuff for arm circumferences from 22 to 42 cm
- Automatic inflation and air release of the cuff
- Large LCD display
- 60 memory positions for storing measurement results including date and time
- Battery or power adapter (not included) operation

DESCRIPTION OF THE BLOOD PRESSURE MONITOR

A



①	Blood pressure cuff	⑥	SET ▼ button
②	Air hose	⑦	START/STOP button
③	Air hose connection socket	⑧	Power adapter connection socket
④	LCD display	⑨	Battery compartment
⑤	MEM ▲ button	⑩	Battery compartment cover

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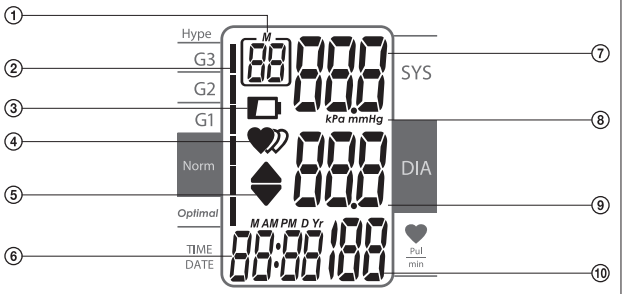
DESCRIPTION OF THE DISPLAY

B



① Display of the memory sequence number
② Measured blood pressure category
③ Flat battery indicator
④ Detection of cardiac arrhythmia
⑤ Cuff air release indicator
⑥ Display of date and time
⑦ Systolic pressure value
⑧ Measuring unit
⑨ Diastolic pressure value
⑩ Pulse rate (number of pulses/minute)

USING THE BLOOD PRESSURE MONITOR

1. Selecting a power source

1.1 Using an internal power source

- To power the device using an internal power source use four LR6/AA type batteries (4 × 1.5 V).
- Remove the battery compartment cover and insert four LR6/AA type batteries. When inserting the batteries ensure the correct polarity as shown in the battery compartment. Close the cover.
- The batteries need to be replaced when:
  – the display shows the symbol ▭.
  – the display is dim.
  – the display does not turn on.

1.2 Using an external power source

- A power adapter Sencor SBX 001 (output 6 V ⎓, 1 A) can be purchased. To purchase the power adapter, please contact your vendor.
- Connect the power adapter connector to the socket on the right side of the device. Insert the power supply plug into the an electrical power socket.
- Only use the adapter designed for this device.

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Note:
If the polarity is reversed when the batteries are inserted, the device may not only not function but may also heat up.
Do not combine used and new batteries or batteries of various types, e.g. alkaline batteries and rechargeable batteries.
Do not use the adapter and batteries at the same time.
Saved records will remain stored in the memory even after the batteries are replaced.

2. Setting the date, time and measuring units

2.1 Before taking measurements, set the current date, time and measuring unit. The measured values will be stored in memory together with the date and time of measurement.
2.2 Check that the device is turned off (the LCD display is off) or turn it off using the START/STOP button. Hold down the SET ▼ button for 3 seconds. "Year" will start to flash on the display.
2.3 Use the MEM ▲ button to set the current year. Confirm the setting by pressing the SET ▼ button. The device will automatically switch to the month setting mode.
2.4 Use the MEM ▲ button to set the current month. Confirm the setting by pressing the SET ▼ button. The device will automatically switch to the day setting mode.
2.5 Set the current day of the month using the MEM ▲ button. Confirm the setting by pressing the SET ▼ button. The device will automatically switch to the hour setting mode.
2.6 Use the MEM ▲ button to set the current hour. Confirm the setting by pressing the SET ▼ button. The device will automatically switch to the minute setting mode.
2.7 Use the MEM ▲ button to set the current minutes. Confirm the setting by pressing the SET ▼ button. The device will automatically switch to the measuring unit selection mode.
2.8 Select the measuring unit mmHg or kPa using the MEM ▲ button. Confirm the setting by pressing the SET ▼ button.

Note:
The standard measuring unit for the measurement of blood pressure is mmHg (millimetres of a mercury column).

2.9 After completing the setup, "done" will appear on the display. Setup of the date, time and measuring units is complete. Then the device turns itself off automatically.

Note:
Setting range: year 2000–2050, time format: 24 hour

3. Measurement

3.1 Basic instructions for achieving the most accurate measuring results

- Always take measurements at the same time of day, ideally in the morning, at noon and in the evening under the same conditions or according to the recommendations of your doctor.
- Do not perform measurement sooner than 30–45 minutes after consuming coffee, tea or smoking a cigarette.
- Wait at least 20 minutes after taking a hot shower or bath.
- During measurement sit calmly, relaxed and don't talk. Do not move the arm to which the cuff is attached.
- Wait approximately 4–5 minutes before measuring again.

3.2 Attaching and securing the cuff

- Remove all tight clothing from the arm before attaching the cuff.
- Attach the cuff 2–3 cm above the elbow cavity and ensure that the air hose is located above the brachial artery, as illustrated on the cuff label.

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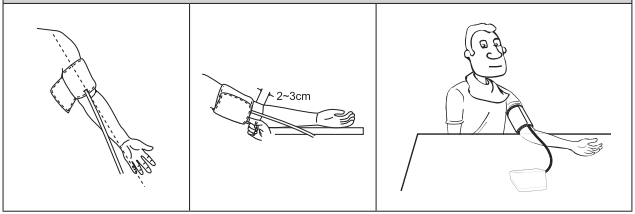
- The cuff must not be too loose or too tight. Verify the correct tightness by easily inserting one finger between the cuff and the arm.
- Place the forearm on an even table surface

Note:
Blood pressure can be measured both on the left and the right arm. However, the measurement results from the left and right arm may differ, and for this reason it is necessary to perform repeated measurements always on the same arm.

C



3.3 Measuring blood pressure

3.3.1 Turn on the device by pressing the START/STOP button. In a short time all the elements will light up on the LCD display.

3.3.2 If residual air remains in the cuff, the symbol ▼ will appear on the display for a short time and the air will be released. The value 0 mmHg (or kPa) and the time of measurement will appear on the display.

3.3.3 The device will automatically pressurise the cuff. While the cuff is being pressurised the pulse rate is being detected. This is indicated by the flashing ♥ symbol on the LCD display.

3.3.4 Then the pressure in the cuff is continuously released and the values of the systolic (SYS) and diastolic (DIA) pressure, pulse rate and the blood pressure are automatically determined. The blood pressure categories are defined in the following table.

Measured blood pressure value in mmHg	Blood pressure category					
	Optimal	Normal	Normal (high)	G1 Mild hypertension	G2 Medium hypertension	G3 Heavy hypertension
SYS (systolic value)	≤120	121–130	131–140	141–160	161–180	>180
DIA (diastolic value)	≤80	81–85	86–90	91–100	101–110	>110

Note:
If the symbol ♥ appears on the display, the device has detected cardiac arrhythmia.

3.3.5 Turn off the device by pressing the START/STOP button. If you do not turn off the device, it will turn itself off automatically within 1 minute of the last measurement. Remove the cuff from your arm after completing the measurement.

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4. Recalling memory

4.1 To show the last measurement record press the MEM ▲ button.

4.2 To scroll through the individual measurements in memory, use the MEM ▲ and SET ▼ buttons.

4.3 For each measurement the month/day and the time the measurement was taken will be shown in the bottom left hand part of the display.

4.4 The most recent measurement stored in memory always has the sequence number of 1. The maximum memory capacity is 60 measurements. As soon as the maximum memory capacity is achieved, every new measurement will delete the oldest measurement.

5. Deleting memory

5.1 Check that the device is turned off (the LCD display is off) or turn it off using the START/STOP button. Hold down the MEM ▲ button with your finger for 3 seconds. The message "del all" (delete all) will appear on the display.

5.2 Press the SET ▼ button to confirm the deletion of all measurements in memory. The display will show the message "del" (delete) and "done" (completed). The device will automatically turn itself off.

Note:
If you wish to interrupt the deletion process, press the START/STOP button.

5.3 No values will appear on the display when the memory is subsequently retrieved.

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TROUBLESHOOTING

In this chapter you will find solutions to problems that you may encounter when using this device. If you were unable to remedy the problem according to the following instructions, contact an authorised service centre.

Problem / error message	Possible cause	Possible solution
After pressing the START/STOP button the display does not turn on.	Batteries are flat.	Replace the batteries.
	The batteries are inserted incorrectly.	Insert the batteries with the correct polarity direction as shown in the battery compartment.
	The adapter is not connected to a power socket.	Connect the adapter to a power socket.
The symbol ▭ is shown on the display.	Batteries are almost flat.	Replace the old batteries with new ones.
E1	The cuff is not attached to the arm or is attached to the arm too loosely.	Turn off the device using the START/STOP button. Attach the cuff to you arm according to the instructions in chapter Attaching and securing the cuff and repeat the measurement.
E2	The cuff is too tight.	Turn off the device using the START/STOP button. Attach the cuff to you arm according to the instructions in chapter Attaching and securing the cuff and repeat the measurement.
E3	The pressure in the cuff was exceeded.	Rest for 4 to 5 minutes and then repeat the measurement.
E10 or E11	The device detected movement during the measurement.	Movement may affect the measurement result. Rest for 4 to 5 minutes and then repeat the measurement.
E20 or E21	Measurement error.	Rest for 4 to 5 minutes and then repeat the measurement.

If a different error message in the format E + number code or Ee + number code appears on the screen that is not included in the table, turn off the device, take the batteries out of it or disconnect the power adapter from the electrical power socket. Wait a while and then reinsert the batteries or reconnect the power adapter to the electrical power socket. After a few minutes repeat the measurement. If the problem persists, contact your vendor or an authorised service centre.

MAINTENANCE AND CLEANING

- Keep the device clean. Wipe off dust using a lightly damp cloth.
- Do not wash the device or the pressurising cuff under running water or submerge it in water.
- Do not use abrasive cleaning products or petrol for cleaning. Otherwise the device may be damaged.

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STORAGE

- If you will not be using the device for an extended period of time, remove the batteries.
- Protect the device against impacts and falls.
- Store the device in a clean, dry place out of reach of children. Do not expose the device to direct sunlight or extreme temperature changes.

CALIBRATION

Recommendation: To ensure accurate measurement results we recommend the device is calibrated after two years of operation. All costs associated with the calibration are borne by the customer.

ELECTROMAGNETIC INTERFERENCE

To prevent measurement inaccuracies caused by electromagnetic interference, do not use this device in the vicinity of mobile telephones or microwave ovens.

COMPLIANCE WITH STANDARDS

This device complies with European standards:

EN 60601-1 Medical electrical devices – Part 1: General basic safety and necessary functionality requirements
EN 60601-1-2 Medical electrical devices – Part 1-2: General basic safety and necessary functionality requirements – Group norm: Electromagnetic compatibility - Requirements and tests
EN 1060-1 Non-invasive blood pressure monitors – Part 1: General requirements
EN 1060-3 Non-invasive blood pressure monitors – Part 3: Specific requirements for electromechanical systems for the measurement of blood pressure

CE 0123 This device meets the requirements of the European directive 93/42/EEC.

The manufacturing date is marked on the rating label of the device.

Manufacturer: Zhongshan Transtek Electronics Co., Ltd
Jinan Road, Jinbiao, Minzhong, Zhongshan, Guandong, China

EC REP **Authorised representative for the EU:** MDSS – Medical Device Safety Service GmbH, Schiffgraben 41, 30175 Hannover, Germany

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TECHNICAL SPECIFICATIONS

Measuring method	Oscillometric
Display	LCD, display size 93 x 61 mm
Memory capacity	60 records
Measuring range	Pressure: 0–300 mmHg (0–40 kPa) Pulse: 40–199 pulses/minute
Measurement accuracy	Pressure: ±3 mmHg (0.4 kPa) at an ambient temperature of 15–25 °C ±6 mmHg (0.8 kPa) at an ambient temperature of 10–14 °C and 26–40 °C Pulse: ±5 %
Adjustable size of the cuff	22–42 cm
Power source	4 x type LR6/AA battery (6 V ⎓) or a power adapter Sencor SBX 001 (not included), input: 100–240 V~, 50–60 Hz, 400 mA, output: 6 V ⎓, 1 A
Protection against injury by electric shock	Medical electrical device with an internal power supply (only when batteries are used) Sencor SBX 001 power adapter (not included) – Class II protection Applied part type B
Degree of protection against the intrusion of water	IPX0
Safety of use in the presence of anaesthetic combustible mixtures	The device is not suitable for use in the presence of combustible anaesthetic and air mixtures or combustible anaesthetic and oxygen mixtures, or mixtures containing oxides of nitrogen
Operating mode	Continuous operation with short term loading
Operating conditions	Ambient temperature: 5 °C to 40 °C, humidity ≤80 %
Storage conditions	Ambient temperature: –20 °C to 60 °C, humidity 10–93 %
Dimensions of the device	140 x 120 x 70 mm
Weight of the device	287 g (without cuff and batteries)
Accessories	Blood pressure cuff, 4 x LR6/AA type battery, user's manual

We reserve the right to change text and technical specifications.

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INSTRUCTIONS AND INFORMATION REGARDING THE DISPOSAL OF USED PACKAGING MATERIALS

Dispose of packaging material at a public waste disposal site.

DISPOSAL OF USED BATTERIES

Batteries contain environmentally damaging compounds and therefore do not belong in standard household waste. Take the batteries to an appropriate collection point, which will provide for their ecological disposal. You can obtain the contact for the nearest collection point from you town council or from your retailer.

DISPOSAL OF USED ELECTRICAL AND ELECTRONIC EQUIPMENT

The meaning of the symbol on the product, its accessory or packaging indicates that this product shall not be treated as household waste. Please, dispose of this product at your applicable collection point for the recycling of electrical & electronic equipment waste. Alternatively in some states of the European Union or other European states you may return your products to your local retailer when buying an equivalent new product. The correct disposal of this product will help save valuable natural resources and help in preventing the potential negative impact on the environment and human health, which could be caused as a result of improper liquidation of waste. Please ask your local authorities or the nearest waste collection centre for further details. The improper disposal of this type of waste may fall subject to national regulations for fines.

For business entities in the European Union
If you wish to dispose of an electrical or electronic device, request the necessary information from your seller or supplier.

Disposal in other countries outside the European Union
If you wish to dispose of this product, request the necessary information about the correct disposal method from local government departments or from your seller.

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